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proceed with the more formal organization of the society. Let them at the beginning imitate the Geological Society of America and other societies of similar grade by requiring that all approved candidates for membership shall be well-trained and productive students of geography, or of some phase of that broad subject. Let the membership fee be set at such a figure that the society may be self-supporting, able to conduct its own publications. Let essays for publication be carefully scrutinized by the council, and let it be recognized that a merely personal narrative of travel no more constitutes a geographical essay because it mentions a harbor or a hill than it constitutes a botanical essay because it mentions a swamp or a forest. Let it be understood that all communications must present an objective account of some element of inorganic environment, or of some organisms in their environment, or an account of the relationship of the two. Let such treatment of the subject be required as shall indicate that the contributor has had sound training in preparation for his work of observation, description, generalization, inference and so on; let the work of apprentices and amateurs be referred to local societies for further development before acceptance in the general society. In a word, let the beginning be marked by careful attention to quality rather than to quantity. Let growth be sound even if slow. Let membership be accessible not to the mere traveller, the lover of outdoor nature or the reader, but only to the investigator, whether he stays at home or roams abroad. Let a standard be set that will demand training and accomplishment on the part of those who reach it, in contrast to the dilettanteism that suffices for membership in all the present geographical societies.

The manifest difficulty in the way of establishing and maintaining such a society is the great diversity of interests among those who should be considered as trained geographers: The subject is a natural unit for schools in its elementary reaches; but the paths of its maturer scholars are divergent. The geodesist, the meteorologist, the hydrographer, the geomorphologist, the ethnologist, the economist, might perhaps repel rather than attract

one another, so unlike are their lines of thought and their methods of work. Their association with other sciences might be stronger than with geography; the geodesist with astronomy, the meteorologist with physics, the hydrographer with engineering, the geomorphologist with geology, the ethnologist and the economist with ethnology and economics. But diversity of specialization characterizes all learned societies. In the Geological Society, the paleontologist does not always listen attentively to the glacialist, nor the petrographer to the physiographer, and all these sometimes fail to follow the local stratigrapher. Diversity of interest does not, therefore, prohibit the effective union of experts; and such a union along geographical lines would be well worth trying. I hope that others who may be interested in any aspect of this scheme will send a statement of their opinions either to SCIENCE or to Professor Russell direct. If a considerable measure of interest is thus indicated, let us beg Professor Russell to proceed in the direction indicated by the majority of his correspondents and take the necessary steps for a preliminary meeting at Pittsburgh, so that an effective organization may be made at Washington a year hence.

W. M. DAVIS.

HARVARD UNIVERSITY,
Feb. 6, 1902.

THE RISE OF ALKALI SALTS TO THE SOIL SURFACE.

THE explanation given by Means (SCIENCE, of January 3) of the accumulation of soluble salts on the surface of soils by the differential action of capillary and gravitational pores, seems also to offer a correct explanation of the length of time and large amount of water required for an effectual leaching-out of alkali salts by flooding. The fact shown in the investigations of the California Station, that in coarsely sandy lands the maximum of the salts is found not *at*, but at some distance *below*, the surface, offers a correlative corroboration.

But this explanation certainly does not apply to the case referred to by Means, viz.,

the Fresno region, where the ground water originally stood forty feet below the surface, while now it is at a few feet, and sometimes *at* and above the soil surface. It is historically certain that the rise of the ground water came about there, as at many other points, not from direct over-irrigation, but by the enormous leakage of water from ditches with porous, sandy bottoms and banks. From these I have frequently traced the water slope sideways until the auger reached a depth of ten or more feet; and the gradual rise of the water level in neighboring wells, whose sides remained dry save within reach of the capillary rise of the water, proved plainly that the water was ascending from the original level by hydrostatic adjustment, not by penetration from above; where as a matter of fact irrigation often had not even begun.

The extraordinary accumulation of alkali salts at the surface that has occurred in the Fresno and some other regions of the San Joaquin valley, are clearly due originally to the leaching upward of the entire mass of alkali in the sub-strata. The investigations of the California Station have shown that in the arid region few uplands normally contain less than from 2,000 to 2,500 pounds of soluble salts per acre in four feet depth; and much more has been found in the silty sub-strata of the Salton basin in southern California, even to 22 feet depth. When all the salts thus contained in 40 feet of material are leached to the surface in addition to the accumulation already existing there, the overwhelming invasion we find where these leaky ditches exist cannot surprise us.

E. W. HILGARD.

REPRINTS OF SCIENTIFIC PAPERS.

TO THE EDITOR OF SCIENCE: Will you allow me space for a word concerning a point of professional courtesy? It arose in connection with a personal experience. The incident is wholly trivial, namely, the failure of the publishers, or editor, of the *New York Teachers' Monographs* to furnish the reprints promised of an article which appeared in the October number.

It is the custom of writers on technical science to exchange copies of their published

monographs. The brochure is sent frequently with an explicit—and always with at least the implied—request for a similar courtesy in return, upon the appearance of anything of the receiver's own in print. The relation thus becomes one of simple duty, which may not be considered or disregarded at will. To each of his correspondents one owes a debt which is discharged only when copies of his own published work have been sent in exchange.

But the matter goes deeper. The contributor to technical scientific periodicals is rarely, if ever, paid for his writings. These publications, in many instances founded and supported by associations of scientific students, are not primarily commercial enterprises, but vehicles of communication among scholars having common interests and aims. They are means by which is made possible the publication of monographic literature, the printing of which, in the majority of cases, would be too heavy a burden for the individual writer. It is part of the meaning of these technical journals' existence that the process of thus communicating scientific thought shall be facilitated as greatly as possible.

This function has been very widely and generously recognized by the publishers of our reputable scientific periodicals in America. It is expressed in the custom of presenting to each substantial contributor a larger or smaller number of separately bound reprints of his article for distribution. Upon the free exchange of monographs which thus becomes possible the scholar depends in no small degree for the equipment of his working library; for this literature, which represents the points of immediate growth in special lines of thought, finds its way only slowly and incompletely into permanent print. It is, therefore, a matter of serious and general importance that these relations between contributor and publisher should be cordially maintained, and the flagrant infraction of them should not remain unknown.

ROBERT MACDOUGALL.

NEW YORK UNIVERSITY.

THE SACRAMENTO FORESTS OF NEW MEXICO.

TO THE EDITOR OF SCIENCE: In a communication to your paper dated November 8, 1901,